

C L A I M S

1. A spiral linear motor, comprising:

a rotator that comprises a center shaft and a spiral-shaped portion provided on the outer circumference  
5 of the center shaft; and

a stator comprising spiral-shaped hollow magnetic poles forming a center space with the same pitch as the rotator,

wherein the center shaft of the rotator is within  
10 the hollow magnetic poles forming a center space of the stator;

the spiral-shaped portion of the rotator is rotatable in a spiral shape within the spiral-shaped groove of the hollow magnetic poles forming a center space; and

15 the rotator moves linearly in the axial direction while rotating in a spiral shape with respect to the stator.

2. The spiral linear motor according to claim 1, wherein the rotator comprises a permanent magnet on the spiral side face of the spiral-shaped portion.

20 3. The spiral linear motor according to claim 1, wherein the stator has windings of two phases that are mutually displaced through 90 degrees on both spiral-shaped side faces of the hollow magnetic poles forming a center space wound in the axial direction of the stator.

25 4. The spiral linear motor according to claim 1, wherein the stator comprises a slot on both spiral-shaped side faces of the hollow magnetic poles forming a center

space; and

the windings are wound in the slot.